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**ABSTRACT OF THE DISCLOSURE**

Non-circular vias and methods of cutting away material in a printed circuit board (PCB) so as to form non-circular vias. Laser ablation or plasma ablation is used to remove PCB material about a centerline. This type of material removal allows lateral movement to effect non-circular patterns. Exemplary shapes are convoluted circle vias, square vias, extended/elongated vias, and trench vias. The trench vias may be micro milled to form a coaxialised structure that provides noise suppression and EMI protection, and are elongated to be even greater than three times the diameter of a circular micro-via.